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The Ultimate Audio Tool

For the Atari
LYNX

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for the Atari Lynx

Welcome to *SFX*, the ultimate audio tool for your Atari Lynx. Perfect for the hobbyist developer or the curious tinkerer, this sound utility will allow you almost full control over the four audio channels available on the Lynx. You can adjust volumes, frequencies, waveforms, and more. With just a few moments of effort, you'll be hearing familiar engine noises, rumbling explosions, and computer garbles. Blend several channels together at once, link or unlink them on the fly: it's all possible with *SFX*.

Getting Started:

1. Insert your *SFX* cartridge in your Lynx, with the label side facing the Lynx.
2. Turn on the machine. The Atari logo appears.
3. Wait a moment, and the *SFX* title screen appears. Press A or B to enter the *SFX* utility screen, or press Option 2 to turn off the title screen sound effects.
4. Refer to the following pages for a diagram and explanation of the controls.

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1. **Joypad** - Up and down select the audio register, right and left alter the register value by ± 1 , respectively
2. **A button** - Toggles sound on and off. The speaker icon on the right side of the screen will appear or disappear appropriately
3. **B button** - In conjunction with the right and left joypad function, alters the register value by ± 10 (hexadecimal) instead of ± 1
4. **Option 1** - Selects one of the four audio channels (numbered 0-3). The current audio channel is displayed at the top of the screen
5. **Option 2** - Resets the current audio channel to its default values. Also mutes sound on title screen.

Reset - Returns the program to the *SFX* title screen

Flip - Disabled

Hints on creating sound effects:

Note that all registers are represented in hexadecimal notation.

Volume Simply increases or decreases the volume of the sound. Note that 7F is the lowest volume possible, and that 01 is equivalent to FF but with opposite phase. 80 is equivalent to 00 (no volume).

Shift Creates feedback used as a polynomial sequence generator to generate waveforms. This (and to a lesser extent the Low Shift register) can be used to create anything from a "pure" square wave to a distortion/noise waveform.

Low Shift The lower 8 bits of the Shift register (see above).

Backup Determines the base frequency of the sound. The audio hardware will preload a counter with the Backup value, count down to zero, and then reload it with Backup.

Flags From the most significant bit (i.e. the leftmost bit)

Bit 7 Feedback bit 7

Bit 6 Reset timer done

Bit 5 Enable integrate mode

Bit 4 Enable reload

Bit 3 Enable count

Bit 2, Bit 1, Bit 0 Clock select

7 = "linking"

6 = 64 us

5 = 32 us

4 = 16 us

3 = 8 us

2 = 4 us

1 = 2 us

0 = 1 us

Bits 2, 1, and 0 determine the octave of the sound by setting the timer clock speed

Sample Sound Effects:

Engine Hum	Shift = 08, LS = 00, Backup = 70, Flags = 1E. Adjust Backup register to simulate RPMs.
Machine Gun	Shift = FB, LS = 00, Backup = 10, Flags = 0B
Explosion	Shift = 4B, LS = 00, Backup = 00, Flags = 1E. Increase Backup or decrease Volume registers for effect.
Computer Garble	Shift = 03, LS = 00, Backup = 10, Flags = 0E. Adjust Flags with B button and joypad to simulate "data transmission."

More Information:

To order or find more information on new games for the Atari Lynx and Jaguar, visit the Songbird Productions web site located at:

<http://songbird.atari.org>

or reach Songbird Productions by email at songbird@atari.org

Sample Screen Shots



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